

Claims

1. A portable communications device including a speaker and an antenna, the antenna being associated with an antenna cavity which is arranged to form an audio cavity for the speaker.

2. A portable communications device according to claim 1, wherein the antenna comprises a ground plane and a radiating conductor spaced from the ground plane, the antenna cavity comprising the space between the radiating conductor and the ground plane.

3. A portable communications device according to claim 2, further comprising a printed circuit board to which device components are mounted, wherein the ground plane comprises the printed circuit board.

4. A portable communications device according to claim 2, further comprising a printed circuit board to which at least one radio frequency screening can is mounted, wherein the ground plane comprises a surface of said at least one of the screening cans.

5. A portable communications device according to claim 2, wherein the antenna comprises a patch antenna.

6. A portable communications device according to claim 5, wherein the antenna comprises a planar inverted-F antenna (PIFA).

7. A portable communications device according to claim 1, including a housing to which the antenna is mounted, wherein the antenna includes a radiating element spaced from the housing and the antenna cavity comprises the space between the radiating element and the housing.

8. A portable communications device according to claim 7, wherein the antenna is selected from a meander antenna or a planar antenna.

9. A portable communications device according to claim 1, wherein the speaker is located outside the antenna cavity.

5 10. A portable communications device according to claim 9, wherein the speaker is located adjacent to the antenna.

10 11. A portable communications device according to claim 9, further comprising a duct for connecting the speaker to the audio cavity.

12. A portable communications device according to claim 1, wherein the audio cavity comprises a sealed volume.

15 13. A portable communications device according to claim 1, wherein the audio cavity comprises a back volume for the speaker.

14. A portable communications device according to claim 1, wherein the audio cavity comprises a front volume for the speaker.

20 15. A portable communications device according to claim 1, comprising a mobile telephone.

16. A portable communications device according to claim 1, wherein the speaker comprises a hands-free speaker.

25 17. A portable communications device including a speaker and an antenna, said antenna forming an antenna cavity within said device, said device including an audio cavity for the speaker, wherein the audio cavity and the antenna cavity are shared by said speaker and said antenna.

30 18. An antenna module for a portable communications device, said device including a housing portion and said antenna module including an antenna and an audio outlet for a speaker, the module being configured such that, when it is

connected to said housing portion of the device, a sealed cavity is formed which comprises an audio cavity for a speaker mounted to the device.

19. An antenna module according to claim 18, including means for receiving a
5 speaker.

20. An antenna module according to claim 19, wherein said means comprise a
clip arrangement.

10 21. A method of assembling a portable communications device, the device comprising a housing, a speaker and an antenna module including an antenna, the method comprising the steps of mounting the speaker to the housing and mounting the antenna module to the housing to form a sealed volume between the antenna and the housing, said sealed volume including the speaker and said sealed volume comprising an audio cavity.
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22. A method according to claim 21, wherein the step of mounting the speaker to the housing comprises first mounting the speaker to the antenna module so that the step of mounting the antenna module to the housing simultaneously mounts the
20 speaker to the housing.

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